AIR QUALITY STUDY

I-215 BI-COUNTY HOV LANE GAP CLOSURE PROJECT

$PM_{2.5}$ AND PM_{10} ANALYSIS

08-RIV-91-20.7/21.7
08-RIV-215-43.2/45.3
08-SBD-215-0.0/5.7

EA 08-0M940

Submitted to:

State of California
Department of Transportation, District 8
464 West 4th Street
San Bernardino, California 92401-1400

January 2010

TABLE OF CONTENTS

FIGURES

TABLES

ATTACHMENTS

INTRODUCTION

This $PM_{2.5}$[1] and PM_{10}[2] hot-spot analysis for the Interstate 215 (I-215) High-Occupancy Vehicle (HOV) Lane Gap Closure Project (project) was prepared in response to the United States Environmental Protection Agency (EPA) releasing new $PM_{2.5}$ and PM_{10} hot-spot analysis requirements in its March 10, 2006, final transportation conformity rule (71 Federal Register [FR] 12468) (Final Rule). The 2006 Final Rule supersedes the Federal Highway Administration's (FHWA) September 12, 2001 "Guidance for Qualitative Project-Level Hotspot Analysis in PM_{10} Nonattainment and Maintenance Areas." This analysis was conducted following the procedures and methodology provided in the "Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas" (EPA/FHWA Guidance) (EPA 2006a).

This $PM_{2.5}$ and PM_{10} analysis addresses the construction of the proposed project, including the following components identified in the Regional Transportation Plan (RTP) and the Regional Transportation Improvement Program (RTIP): Project ID: SBD200614. Description: I-215 Bi-County improvement project add one HOV and mixed flow lane in each direction from 60/91/215 junction to Orange Show Road; reconstruct overcrossing and underpasses; construct/modify freeway access ramps; modify freeway connectors; add deceleration and acceleration lanes.

PROJECT DESCRIPTION

Introduction

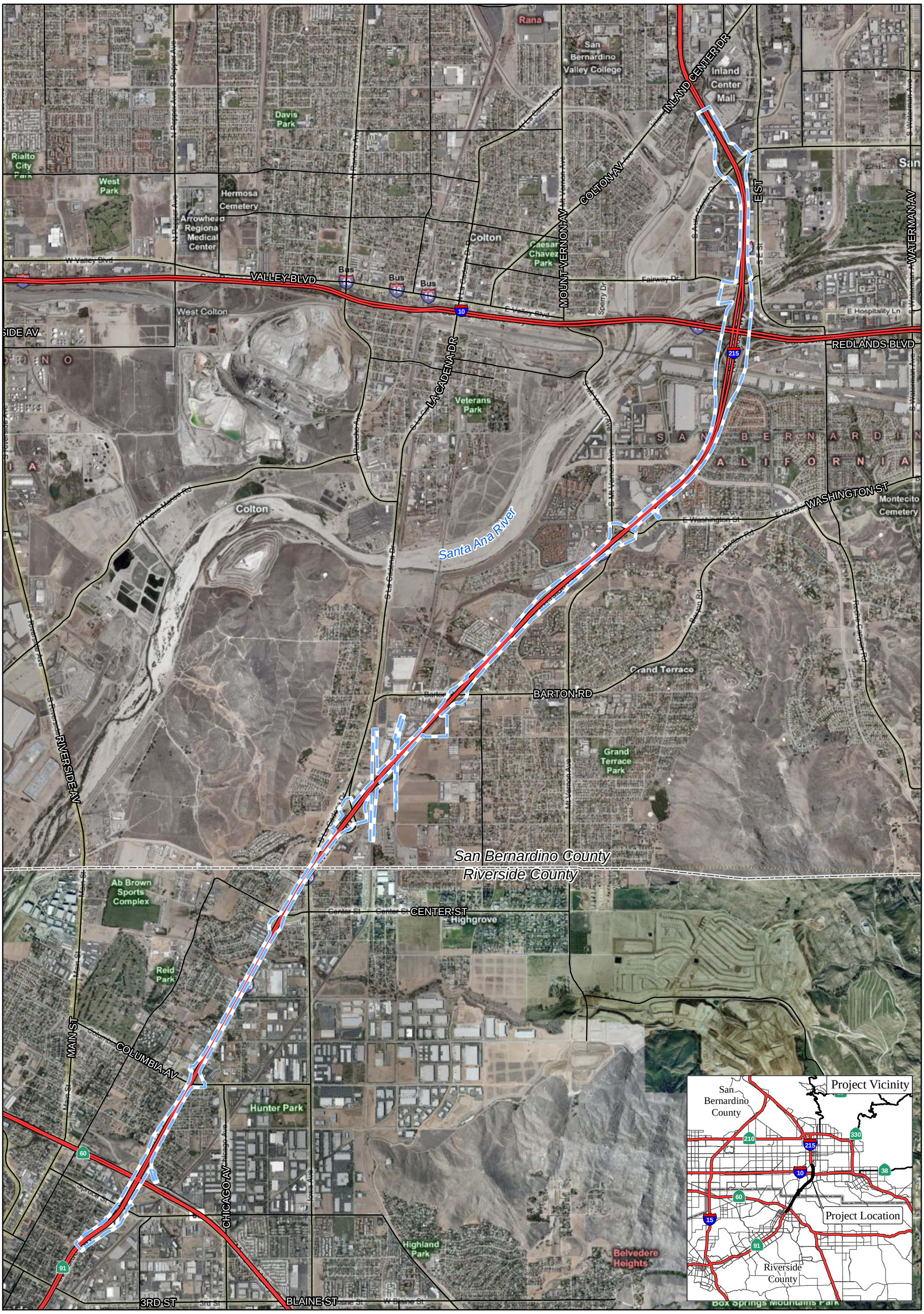
The California Department of Transportation (Department) in cooperation with San Bernardino Associated Governments (SANBAG) and the Riverside County Transportation Commission (RCTC) proposes to construct an HOV lane in each direction on Interstate 215 (I-215), beginning south of the I-215/State Route 60 (SR-60)/State Route 91 (SR-91) interchange, and ending at the Orange Show Road interchange just north of the I-215/Interstate 10 (I-10) interchange. The proposed project is in San Bernardino and Riverside Counties, California. The project length is approximately 7.5 miles (mi), and the post mile (PM) limits are PM 20.7/21.7 on SR-91 in Riverside County, PM 43.2/45.3 on I-215 in Riverside County, and PM 0.0/5.7 on I-215 in San Bernardino County. The project location and vicinity are shown in Figure 1.

Purpose and Need

Purpose. The purpose of the project is to close the HOV lane gap that would exist after completion of the HOV lanes north and south of the project limits. The project objectives are to:

- Close the gap in a regional HOV network to provide continuous HOV lanes from San Bernardino to Los Angeles along the I-215/SR-91 corridor;
- Increase the efficiency of the overall regional HOV system by providing continuity of the mainline HOV network in western Riverside and San Bernardino Counties;

[1] Particulate matter less than 2.5 microns in diameter.
[2] Particulate matter less than 10 microns in diameter.



LEGEND

Project Area

FIGURE 1

I-215 Bi-County HOV Lane Gap Closure Project

Project Location

08-Riv-91-PM 20.7/21.7
08-Riv-215-PM 43.2/45.3
08-SBd-215-PM 0.0/5.7
EA# 0M940

0 1375 2750
FEET

SOURCE: Bing Maps (2008); TBM (2008)

I:\SBA330\I-215_Mainline\GIS\ProjectLocation_Aerial.mxd (12/14/2009)

- Maximize the overall freeway segment performance by minimizing weaving conflicts at the termini of HOV lanes, thus resulting in travel speeds being maintained for HOV lane cars;
- Minimize conflicts between the HOV lane and mixed-flow lane traffic by eliminating choke points that would result from HOVs being forced to merge into mixed-flow lanes; and
- Increase the appeal of ridesharing for commuters in this corridor, thus promoting the use of the HOV system.

Need. I-215 is a major freeway in Riverside and San Bernardino Counties, both of which have historically had the highest rates of workers who carpool in the Southern California Association of Governments (SCAG) region.[1] As discussed in the SCAG RTP,[2] the completion of the HOV system will be an important step toward meeting future travel demand. The project would eliminate future deficiencies described below.

- A high demand of HOV traffic is projected during peak hours in 2014 and 2035. The current HOV lane termini in both directions would require the HOV traffic to merge with the mixed-flow lane traffic, which would compromise the overall traffic flow. The I-215 HOV Lane Gap Closure Project would provide continuous regional HOV lanes between San Bernardino and Los Angeles, thereby improving HOV capacity, travel speeds, and minimizing conflicts with mixed-flow lane traffic caused by merging vehicles.
- A continuous HOV network along the I-215/SR-91 corridor would support the Department goal of reducing overall congestion and delay by encouraging HOV use through carpooling and vanpooling, particularly during peak hours.

Transportation Demand. The demand for an HOV lane in the project area will increase through 2035. Within the project area in 2035, approximately 39,000 vehicle hours are traveled (VHT) in the a.m. hours at an average speed of 26 miles per hour (mph) and approximately 107,935 VHT in the p.m. hours at an average speed of 21 mph. This represents an increase of approximately 45 percent of VHT over existing conditions (2008) in the 2035 a.m. scenario and an increase of approximately 42 percent of VHT over existing conditions (2008) in the 2035 p.m. scenario.

Social Demand and Economic Development. With its connection to SR-91/SR-60, the I-215 is a major commuter link between Riverside and San Bernardino Counties and employment centers in Orange County and Los Angeles County, making it essential to the economic vitality of the Inland Empire. Recreational and tourist traffic demand also exists between Los Angeles, Orange, and Riverside Counties to beaches and other major recreational and tourist centers such as Palm Springs, Las Vegas, and Joshua Tree National Park.

The Department, SANBAG, and RCTC are developing a network of HOV lanes in western Riverside and San Bernardino Counties. HOV lanes have been installed on segments of SR-60 and SR-91 and are proposed on I-10 and additional segments of SR-60 and SR-91, as well as I-

[1] Final 2008 Regional Transportation Plan: Making the Connections, Adopted May 2008.
[2] Ibid.

215 east of the study area. As discussed in the SCAG RTP regarding HOV lane gap closure, the completion of the HOV system will be an important step toward meeting future travel demand. Completing the HOV system network will help meet traffic demand, provide for better freeway usage overall, and meet air quality goals in the SCAG region.

Project Alternatives

Two alternatives are being analyzed in this document:

- **No Build Alternative (Alternative 1):** Under this alternative, no reconstruction or improvements other than routine roadway maintenance will be made to existing I-215, except for those that are currently approved.
- **Build Alternative (Alternative 2):** Alternative 2 includes construction of approximately 7.5 mi of HOV lanes in each direction within the existing median, with minimal widening within current right-of-way and minimal median barrier replacement. The widening would result in restriping on- and off-ramps along the corridor, with a reduction in the lengths of some acceleration and deceleration lanes. All widening will occur within existing right-of-way. Alternative 2 is shown in Figure 2.

$PM_{2.5}$ AND PM_{10} HOT-SPOT METHODOLOGY

The new Final Rule establishes the transportation conformity criteria and procedures for determining which transportation projects must be analyzed for local air quality impacts in $PM_{2.5}$ and PM_{10} nonattainment and maintenance areas. The proposed project is in the South Coast Air Basin (Basin), which has been designated as a federal nonattainment area for $PM_{2.5}$ and PM_{10}; therefore, a hot-spot analysis for the proposed project is required.

A hot-spot analysis is defined in the Code of Federal Regulations (CFR) (40 CFR 93.101) as an estimation of likely future localized pollutant concentrations and a comparison of those concentrations to the relevant air quality standards. A hot-spot analysis assesses the air quality impacts on a scale smaller than an entire nonattainment or maintenance area, such as for congested roadway intersections and highways or transit terminals. Such an analysis is a means of demonstrating that a transportation project meets the federal Clean Air Act (CAA) conformity requirements to support State and local air quality goals with respect to potential localized air quality impacts. When a hot-spot analysis is required, it is included within the project-level conformity determination that is made by FHWA or the Federal Transit Administration (FTA).

Section 176(c)(1)(B) of the CAA is the statutory criterion that must be met by all projects in nonattainment and maintenance areas that are subject to transportation conformity. Section 176(c)(1)(B) states that federally supported transportation projects must not "cause or contribute to any new violation of any standard in any area; increase the frequency or severity of any existing violation of any standard in any area; or delay timely attainment of any standard or any required interim emission reductions or other milestones in any area."

Figure 2: Alternative 2

Figure 2: Alternative 2 (2 of 8)

Figure 2: Alternative 2 (3 of 8)

Figure 2: Alternative 2 (4 of 8)

Figure 2: Alternative 2 (5 of 8)

Figure 2: Alternative 2 (6 of 8)

Figure 2: Alternative 2 (7 of 8)

Figure 2: Alternative 2 (8 of 8)

The EPA in its *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* (EPA 2006a) has established the following two methods for completing a $PM_{2.5}$ and PM_{10} hot-spot analysis:

a. Comparison to another location with similar characteristics

b. Air quality studies for the proposed project location

This analysis uses a combined approach to demonstrate that the proposed I-215 HOV Lane Gap Closure Project would not result in a new or worsened $PM_{2.5}$ or PM_{10} violation. Method A was used to establish that the proposed project area will meet the national ambient air quality standards (NAAQS). Method B was used to demonstrate that implementation of the proposed project would not delay attainment of the NAAQS.

Ambient Air Quality Standards

$PM_{2.5}$ nonattainment and maintenance areas are required to attain and maintain two NAAQS:

- **24-hour Standard:** 65 micrograms per cubic meter ($\mu g/m^3$). Based on 2004–2006 monitored data, the EPA tightened the $PM_{2.5}$ 24-hour standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$, effective December 2006. New area designations will become effective in early 2010 (EPA 2006b). Therefore, the current standard for conformity purposes is 65 $\mu g/m^3$.
- **Annual Standard:** 15.0 $\mu g/m^3$

The current 24-hour standard is based on a 3-year average of the 98th percentile of 24-hour $PM_{2.5}$ concentrations. The current annual standard is based on a 3-year average of annual mean $PM_{2.5}$ concentrations. A $PM_{2.5}$ hot-spot analysis must consider both standards unless it is determined for a given area in which meeting the controlling standard would ensure that CAA requirements are met for both standards. The interagency consultation process should be used to discuss how the qualitative $PM_{2.5}$ hot-spot analysis meets statutory and regulatory requirements for both $PM_{2.5}$ standards, depending on the factors that are evaluated for a given project.

PM_{10} nonattainment and maintenance areas are required to attain the following standard:

- **24-hour Standard:** 150 $\mu g/m^3$

The 24-hour PM_{10} standard is attained when the average number of exceedances in the previous 3 calendar years is less than or equal to 1.0. An exceedance occurs when a 24-hour concentration of 155 $\mu g/m^3$ or greater is measured at a site. The annual PM_{10} standard of 50 $\mu g/m^3$ is no longer used for determining the federal attainment status. The interagency consultation process should be used to discuss how the qualitative PM_{10} hot-spot analysis meets statutory and regulatory requirements for the PM_{10} standards, depending on the factors that are evaluated for a given project.

To meet statutory requirements, the 2006 Final Rule requires that a $PM_{2.5}$ and PM_{10} hot-spot analysis be performed for a Project of Air Quality Concern (POAQC). The Final Rule states that projects not identified in 40 CFR 93.123(b)(1) as POAQCs have met statutory requirements without any further hot-spot analyses (40 CFR 93.116[a]).

$PM_{2.5}$ AND PM_{10} HOT-SPOT ANALYSIS

Projects of Air Quality Concern

The first step in the hot-spot analysis is to determine whether a project meets the standard for a POAQC. The EPA specified in 40 CFR 93.123(b)(1) of the 2006 Final Rule that POAQC are certain highway and transit projects that involve significant levels of diesel vehicle traffic, or any other project that is identified in the $PM_{2.5}$ and PM_{10} State Implementation Plan (SIP) as a localized air quality concern. The 2006 Final Rule defines the POAQC that require a $PM_{2.5}$ and PM_{10} hot-spot analysis in 40 CFR 93.123(b)(1) as:

i. New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;

ii. Projects affecting intersections that are at level of service (LOS) D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;

iii. New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;

iv. Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; or

v. Projects in or affecting locations, areas, or categories of sites that are identified in the $PM_{2.5}$ and PM_{10} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

The project does qualify as a POAQC because it meets one of the following project types:

1. The *Traffic Operations Analysis* (Iteris, July 24, 2009) indicates that the proposed project would increase the traffic volumes along I-215. In addition, the combined northbound and southbound truck volumes along I-215 would exceed the 10,000 trip threshold. The daily traffic volumes along I-215 are listed in Tables A and B.
2. The LOS conditions along I-215 in the project vicinity with and without the proposed project are shown in Tables 5 through 7 and 11 through 13 of the Traffic Operations Analysis and are included in Appendix B. As shown, the proposed project would improve the LOS along the freeway mainline.
3. The proposed project does not include the construction of a new bus or rail terminal.
4. The proposed project does not expand an existing bus or rail terminal.
5. The proposed project is not in or affecting locations, areas, or categories of sites which are identified in the $PM_{2.5}$ or PM_{10} implementation plan as sites of possible violation.

Therefore, this project is considered to be a POAQC, and a qualitative project-level $PM_{2.5}$ and PM_{10} hot-spot analysis was conducted to assess whether the project would cause or contribute to any new localized $PM_{2.5}$ or PM_{10} violations, increase the frequency or severity of any existing violations, or delay timely attainment of the $PM_{2.5}$ and PM_{10} ambient air quality standards (AAQS).

Table A: 2014 Average Daily Traffic Volumes (ADT/Truck ADT)

Roadway Segment	No Build		Build		Project Increase	
	ADT	Truck ADT	ADT	Truck ADT	ADT	Truck ADT
Northbound I-215						
SR-60/SR-91 IC to Columbia Ave	94,900	6,643	96,700	6,769	1,800	126
Columbia Ave to Center St	93,400	6,538	96,700	6,769	3,300	231
Center St to Iowa Ave	91,300	6,391	94,700	6,629	3,400	238
Iowa Ave to Barton Rd	94,700	6,629	98,100	6,867	3,400	238
Barton Rd to Washington St	99,300	6,951	103,300	7,231	4,000	280
Washington St to I-10 IC	108,500	7,595	108,900	7,623	400	28
I-10 IC to Orange Show Rd	109,100	7,637	110,300	7,721	1,200	84
Southbound I-215						
Orange Show Rd to I-10 IC	108,300	7,581	109,500	7,665	1,200	84
I-10 IC to Washington St	106,000	7,420	106,400	7,448	400	28
Washington St to Barton Rd	95,800	6,706	99,500	6,965	3,700	259
Barton Rd to Iowa Ave	92,000	6,440	95,200	6,664	3,200	224
Iowa Ave to Center St	89,500	6,265	93,100	6,517	3,600	252
Center St to Columbia Ave	91,500	6,405	94,700	6,629	3,200	224
Columbia Ave to SR-60/SR-91 IC	92,800	6,496	94,500	6,615	1,700	119

Source: Iteris, July 2009.
ADT = average daily traffic
I-10 = Interstate 10
IC = interchange
SR-60 = State Route 60
SR-91 = State Route 91

Table B: 2035 Average Daily Traffic Volumes (ADT/Truck ADT)

Roadway Segment	No Build		Build		Project Increase	
	ADT	Truck ADT	ADT	Truck ADT	ADT	Truck ADT
Northbound I-215						
SR-60/SR-91 IC to Columbia Ave	128,500	8,995	143,800	10,066	15,300	1,071
Columbia Ave to Center St	127,600	8,932	144,500	10,115	16,900	1,183
Center St to Iowa Ave	124,800	8,736	141,900	9,933	17,100	1,197
Iowa Ave to Barton Rd	128,700	9,009	143,400	10,038	14,700	1,029
Barton Rd to Washington St	138,400	9,688	153,200	10,724	14,800	1,036
Washington St to I-10 IC	152,000	10,640	169,200	11,844	17,200	1,204
I-10 IC to Orange Show Rd	133,800	9,366	144,400	10,108	10,600	742
Southbound I-215						
Orange Show Rd to I-10 IC	131,500	9,205	145,400	10,178	13,900	973
I-10 IC to Washington St	145,200	10,164	162,700	11,389	17,500	1,225
Washington St to Barton Rd	128,800	9,016	144,800	10,136	16,000	1,120
Barton Rd to Iowa Ave	121,300	8,491	137,600	9,632	16,300	1,141
Iowa Ave to Center St	119,700	8,379	137,100	9,597	17,400	1,218
Center St to Columbia Ave	122,400	8,568	139,100	9,737	16,700	1,169
Columbia Ave to SR 60/91 IC	122,400	8,568	137,100	9,597	14,700	1,029

Source: Iteris, July 2009.
ADT = average daily traffic
I-10 = Interstate 10
IC = interchange
SR-60 = State Route 60
SR-91 = State Route 91

Types of Emissions Considered

In accordance with the EPA/FHWA Guidance, this hot-spot analysis is based on directly emitted and re-entrained $PM_{2.5}$ and PM_{10} emissions. Tailpipe, brake wear, tire wear, and road dust $PM_{2.5}$ and PM_{10} emissions were considered in this hot-spot analysis.

Vehicles cause dust from paved and unpaved roads to be re-entrained, or resuspended, in the atmosphere. According to the 2006 Final Rule, road dust emissions are to be considered for a PM_{10} hot-spot analysis. For $PM_{2.5}$, road dust emissions are only to be considered in a hot-spot analysis if the EPA or the State air agency has made a finding that such emissions are a significant contributor to the $PM_{2.5}$ air quality problem (40 CFR 93.102(b)(3)). The EPA has published guidance on the use of AP-42 for re-entrained road dust for SIP development and conformity (August 2007); therefore, re-entrained $PM_{2.5}$ is considered in this analysis.

Secondary particles formed through $PM_{2.5}$ and PM_{10} precursor emissions from a transportation project take several hours to form in the atmosphere, giving emissions time to disperse beyond the immediate project area of concern for localized analyses; therefore, they were not considered in this hot-spot analysis. Secondary emissions of $PM_{2.5}$ and PM_{10} are considered as part of the regional emission analysis prepared for the conforming RTP and Federal Transportation Improvement Program (FTIP).

According to the project schedule, no phase of construction would last more than 5 years, and construction-related emissions may be considered temporary; therefore, any construction-related $PM_{2.5}$ and PM_{10} emissions due to this project were not included in this hot-spot analysis. This project will comply with the applicable South Coast Air Quality Management District (SCAQMD) Fugitive Dust Rules for the control of fugitive dust during construction of this project. In addition, per Transportation Conformity Rule 93.117, the project will be required to comply with any applicable $PM_{2.5}$ and PM_{10} control measures in the SIP. Excavation, transportation, placement, and handling of excavated soils will result in no visible dust migration. A water truck or tank will be available within the project limits at all times to suppress and control the migration of fugitive dust from earthwork operations.

Analysis Method

According to the hot-spot methodology, estimates of future localized $PM_{2.5}$ and PM_{10} pollutant concentrations need to be determined. This analysis makes those estimates by extrapolating present $PM_{2.5}$ and PM_{10} pollutant concentrations from air quality data measured at monitoring stations in the vicinity of the proposed project. The data from these stations are combined with projections from the 2003 and 2007 Air Quality Management Plans (AQMPs) prepared by the SCAQMD and examined for trends in order to predict future conditions in the project vicinity. Additionally, the impacts of the project and the likelihood of these impacts interacting with the ambient $PM_{2.5}$ and PM_{10} levels to cause hot spots are discussed.

Data Considered

The closest air quality monitoring station to the proposed project is the San Bernardino Air Quality Monitoring Station, located approximately 2 mi north of the project site at 24032 Fourth Street. This station is approximately 1.5 mi from I-215. The project location relative to this monitoring station is shown in Figure 3. Due to the proximity of the monitoring station to the project site, the air quality concentrations monitored at this station are representative of the existing conditions in the project area.

Trends in Baseline $PM_{2.5}$ Concentrations. The monitored $PM_{2.5}$ concentrations at the San Bernardino Station are shown in Table C. These data show that, within the past 5 years, the federal 24-hour $PM_{2.5}$ AAQS (65 µg/m^3) was exceeded in 2004. The annual average $PM_{2.5}$ AAQS (15 µg/m^3) at this station was exceeded in each of the 5 years; however, the concentrations have been decreasing steadily overtime.

Table C: Ambient $PM_{2.5}$ Monitoring Data (µg/m^3)

	2004	2005	2006	2007	2008
San Bernardino Air Quality Monitoring Station					
3 year average 98th percentile 24-Hour Value[1]	65.7	58.1	54.5	53.9	54.0
Exceeds federal 24-hour standard (65 µg/m^3)?	Yes	No	No	No	No
3-year annual average arithmetic mean	23.3	20.5	19.0	17.6	15.6
Exceeds federal annual average standard (15 µg/m^3)?	Yes	Yes	Yes	Yes	Yes

Source: United States Environmental Protection Agency website: http://www.epa.gov/air/data/monvals.html?st~CA~California, accessed November 2009.

[1] These values are higher than 98 percent of 24-hour values for the year.

µg/m^3 = micrograms per cubic meter

Projected 24-hour Concentrations. The levels of $PM_{2.5}$ in the project vicinity are below the current federal 24-hour standard. Table V-2-16 in the 2007 AQMP estimates that the 24-hour $PM_{2.5}$ concentration at the Fontana station (the closest station with projections in the 2007 AQMP) will be 46.7 µg/m^3 in 2015. This concentration would not exceed the current federal 24-hour standard of 65 µg/m^3.

Projected Annual Concentrations. While the current levels of $PM_{2.5}$ in the project vicinity are above the federal annual standard, indications are that levels in the future will continue to decrease. As shown in Table V-2-15c in the 2007 AQMP, the annual $PM_{2.5}$ concentration at the Fontana Station, with the California Air Resources Board (ARB) emission reduction plan and the SCAQMD emission reduction overlay, is projected to be 14.7 µg/m^3 in 2014. This concentration would not exceed the federal annual standard of 15 µg/m^3.

Trends in Baseline PM_{10} Concentrations. The monitored PM_{10} concentrations at the San Bernardino Station, shown in Table D, indicate that the federal 24-hour PM_{10} AAQS (150 µg/m^3) was exceeded once in 2007.

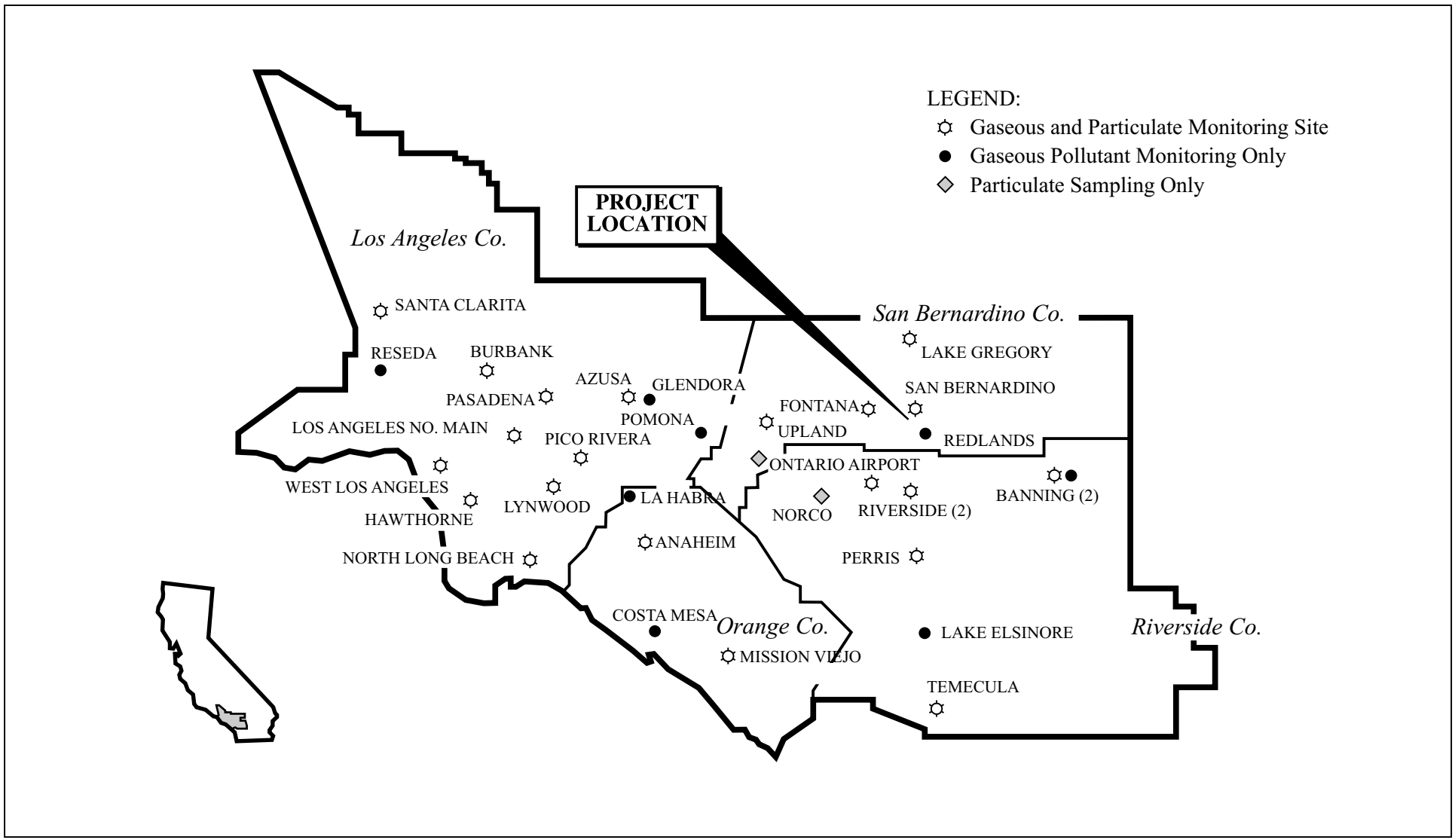


FIGURE 3

I-215 Bi-County HOV Lane Gap Closure Project

SCAQMD Air Monitoring Network
within the South Coast Air Basin

08-RIV-91-20.7/21.7
08-RIV-215-43.2/45.3
08-SBd-215-00/5.7
EA# 0M940

I:\SBA330\HOV\G\SCAQMD.cdr (11/9/09)

Table D: Ambient PM_{10} Monitoring Data ($\mu g/m^3$)

	2004	2005	2006	2007	2008
Fontana Air Quality Monitoring Station					
First Highest	118	72	92	219	76
Second Highest	95	72	83	136	71
Third Highest	93	64	83	114	70
Fourth Highest	77	62	79	106	70
No. of days above national 24-hour standard (150 $\mu g/m^3$)	0	0	0	1	0

Source: California Air Resources Board website: http://www.arb.ca.gov/adam/welcome.html, accessed November 2009.
$\mu g/m^3$ = micrograms per cubic meter

The 2007 AQMP reports that since the federal annual PM_{10} standard has been revoked, the Basin is expected to be declared in attainment for the 24-hour federal PM_{10} standard since 2000. Table V-3-1 in the 2007 AQMP lists the projected 24-hour PM_{10} concentrations at various stations within the Basin. It is estimated that the 24-hour maximum concentration at the Fontana Station will be 97 $\mu g/m^3$ by 2015, which would be 65 percent of the federal standard.

Traffic Changes Due to the Proposed Project

The proposed project is a highway improvement project that will increase the capacity of I-215. Based on the Traffic Operations Analysis (Iteris, July 2009), the proposed project would increase the daily traffic volumes on I-215. Tables A and B lists the Existing Opening Year (2014) and Build-out Year (2035) traffic volumes along I-215.

Table E lists the vehicle miles traveled (VMT), vehicle hours traveled (VHT), and average vehicle speed in the project area for the existing, no build, and build conditions. As shown, the project build alternatives would decrease the VHT and VMT within the project area.

Table E: Daily Traffic Conditions

Alternative	Cars		Trucks		Vehicle Speed
	VMT	VHT	VMT	VHT	
Existing I-215 Corridor	1,342,677	44,387	101,062	3,341	30.2
Existing System Wide	210,858,801	7,400,427	15,871,093	557,021	28.5
2014 No Build I-215 Corridor	1,549,746	53,243	116,648	4,008	29.1
2014 No Build System Wide	223,029,277	7,914,382	16,787,150	595,706	28.2
2014 Build I-215 Corridor	1,531,258	50,868	115,256	3,829	30.1
2014 Build System Wide	222,954,596	7,906,879	16,781,529	595,141	28.2
2035 No Build I-215 Corridor	3,111,008	136,735	234,162	10,292	21.0
2035 No Build System Wide	380,758,136	14,660,759	28,659,215	1,103,498	24.2
2035 Build I-215 Corridor	2,952,621	123,184	222,240	9,272	22.3
2035 Build System Wide	380,612,067	14,598,570	28,648,220	1,098,817	24.2

Source: Iteris, September 2009.
I-215 = Interstate 215
VHT = vehicle hours traveled
VMT = vehicle miles traveled

The I-215 corridor data in Table E include the daily VMT and VHT along the project segments of SR-91 and I-215 and along the secondary roads within the project area. A map of the roadway segments included in this analysis is included in Attachment B. The systemwide traffic data in Table E includes the daily VMT and VHT for all roadways within the SCAG region.

Vehicle Emission Changes Due to the Proposed Project

The traffic data listed in Table E, in conjunction with the EMFAC2007 emission model, was used to calculate the $PM_{2.5}$ and PM_{10} exhaust, tire wear, and brake wear emissions for each of the project alternatives (No Build and Build). EMFAC2007 does not estimate road dust emissions; therefore, the emission rates listed in Section 13.2.1 of EPA's AP-42 were used to calculate the road dust $PM_{2.5}$ and PM_{10} emissions under each alternative. The exhaust and dust emissions generated along the I-215 corridor and the system-wide roadways are listed in Tables F and G for $PM_{2.5}$ and PM_{10}, respectively. The results of the modeling are provided in Attachment A. As shown in Tables F and G, implementation of the project alternatives would result in a net decrease in the $PM_{2.5}$ and PM_{10} emissions in 2014 and 2035. Therefore, the proposed I-215 HOV Lane Gap Closure Project would not delay the attainment of the $PM_{2.5}$ or PM_{10} air quality standards within the Basin.

Table F: Daily $PM_{2.5}$ Emissions in Project Region (lbs/day)

Traffic Condition	Exhaust Emissions	Tire Wear	Brake Wear	Road Dust	Total	Change from No Build
Existing I-215 Corridor	105.8	8.2	15.9	590.2	720.1	–
Existing System Wide	19,831.4	1,294.6	189.7	92,687.2	114,002.9	–
2014 No Build I-215 Corridor	141.9	9.5	19.3	681.2	851.9	–
2014 No Build System Wide	20,426.2	1,369.3	2,773.0	98,037.0	122,605.5	–
2014 Build I-215 Corridor	117.8	9.4	19.0	673.1	819.4	-32.5
2014 Build System Wide	20,419.3	1,368.9	2,772.1	98,004.1	122,564.4	-41.1
2035 No Build I-215 Corridor	238.2	19.1	38.7	1367.5	1,663.5	–
2035 No Build System Wide	29,153.8	2,337.7	4,734.1	167,369.8	203,595.5	–
2035 Build I-215 Corridor	226.1	18.1	36.7	1297.9	1,578.8	-84.7
2035 Build System Wide	29,142.7	2,336.8	4,732.3	167,305.6	203,517.4	-78.1

Source: LSA Associates, Inc., November 2009.
I-215 = Interstate 215
lbs/day = pounds per day
$PM_{2.5}$ = particulate matter less than 2.5 microns in size

Table G: Daily PM_{10} Emissions in Project Region (lbs/day)

Traffic Condition	Exhaust Emissions	Tire Wear	Brake Wear	Road Dust	Total	Change from No Build
Existing I-215 Corridor	166.6	32.9	43.0	1293.6	1,536.1	–
Existing System Wide	31,180.4	5,160.9	6,760.4	203,150.0	246,251.7	–
2014 No Build I-215 Corridor	153.1	37.9	49.7	1493.1	1,733.8	–
2014 No Build System Wide	22,033.4	5,458.8	7,150.6	214,875.5	249,518.3	–
2014 Build I-215 Corridor	128.0	37.5	49.1	1475.3	1,689.8	-43.9
2014 Build System Wide	22,026.0	5,457.0	7,148.2	214,803.6	249,434.8	-83.5
2035 No Build I-215 Corridor	258.9	76.4	99.7	2997.3	3,432.3	–
2035 No Build System Wide	31,681.1	9,350.9	12,207.6	366,837.9	420,077.5	–
2035 Build I-215 Corridor	245.7	72.5	94.7	2844.7	3,257.5	-174.8
2035 Build System Wide	31,669.0	9,347.3	12,202.9	366,697.2	419,916.4	-161.1

Source: LSA Associates, Inc., November 2009.
I-215 = Interstate 215
lbs/day = pounds per day
PM_{10} = particulate matter less than 10 microns in size

CONCLUSION

Transportation conformity is required under Section 176(c) of the federal CAA to ensure that federally supported highway and transit project activities are consistent with the purpose of the SIP. Conformity to the purpose of the SIP means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the relevant AAQS. As required by the 2006 Final Rule, this qualitative $PM_{2.5}$ and PM_{10} hot-spot analysis demonstrates that this project meets the CAA conformity requirements to support State and local air quality goals with respect to potential localized air quality impacts.

It is not expected that changes to $PM_{2.5}$ and PM_{10} emissions levels associated with the proposed I-215 HOV Lane Gap Closure Project would result in new violations of the NAAQS for the following reasons:

- The traffic volumes in the vicinity of the San Bernardino Station are consistent with the existing traffic volumes on I-215.
- The ambient PM_{10} concentrations at the San Bernardino Station exceeded the 24-hour federal standard once within the past 5 years. Based on the 2007 AQMP, the PM_{10} concentration within the project area is projected to be 65 percent of the NAAQS by 2015.
- Based on the local monitoring data and the 2007 AQMP, the 24-hour and annual average $PM_{2.5}$ concentrations in the project area would be reduced to below the federal 24-hour and annual NAAQS by 2015.
- The proposed project would reduce the $PM_{2.5}$ and PM_{10} emissions generated by traffic using the I-215 corridor and the system-wide roadways.

For these reasons, future new or worsened $PM_{2.5}$ and PM_{10} violations of any standards are not anticipated; therefore, the proposed I-215 HOV Lane Gap Closure Project meets the conformity hot-spot requirements in 40 CFR 93-116 and 93-123 for both $PM_{2.5}$ and PM_{10}.

REFERENCES

California Air Resources Board. November 2009. Website: http://www.arb.ca.gov/adam/welcome.html.

Iteris. September 2009. I-215 HOV Lane Gap Closure Project Supplemental Traffic Analysis.

———. July 24, 2009. I-215 HOV Lane Gap Closure Project Traffic Operations Analysis.

United States Environmental Protection Agency. November 2009. Website: http://www.epa.gov/air/data/monvals.html?st~CA~California.

———. 2006a. "Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas" (EPA 420-B-06-902, March 2006).

———. 2006b. Final Revisions to the National Ambient Air Quality Standards for Particulate Pollution (Particulate Matter). EPA website: www.epa.gov/oar/particulatepollution/naaqsrev2006.html, accessed on March 19, 2007.